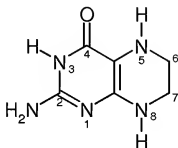


The listing of claims will replace all prior versions, and listings, of claims in the application:

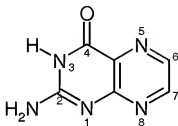
**Listing of Claims:**

1. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in a polar reaction medium in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium, wherein the catalyst contains a ligand which is (i) triarylphosphine, (ii) tetramethylene phenylphosphine (iii) pentamethylene phenylphosphine, or (iv) a bidentate ligand with a tertiary amine group and a phosphine group or with two tertiary phosphine groups as complexing groups, wherein the bidentate ligands form together with a metal atom a five- to ten membered ring.

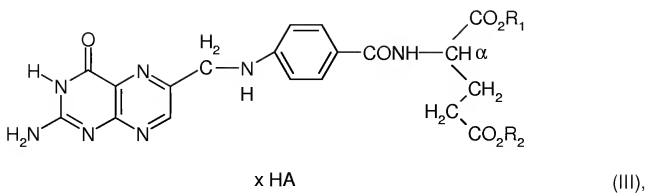
2. (Previously Presented) A process according to claim 1, wherein the polar reaction medium is an aqueous or alcoholic reaction medium.

3. (Previously Presented) A process according to claim 1, wherein the pterin compound is folic acid, a folic acid salt, a folic acid ester, a folic acid ester salt or a dihydro form thereof, with the proviso that in the event of using folic acid, a carboxylic acid thereof or a dihydro form thereof, the reaction medium is aqueous, and in the event of using a folic acid ester, a folic acid ester salt or a dihydro form thereof, the reaction medium is an alcohol.

4. (Previously Presented) A process according to claim 1, wherein the metal complex contains a chiral ligand.

5. (Previously Presented) A process according to claim 3, wherein the metal complex contains a chiral ligand.

6. (Previously Presented) A process according to claim 5, wherein the folic acid ester salt is of formula III and is in the form of a single enantiomer or a mixture of enantiomers of formula III,



in which

one of  $R_1$  or  $R_2$  is H, and the other one of  $R_1$  or  $R_2$  is a monovalent hydrocarbon radical or a hydrocarbon radical attached via a carbon atom in which one or more carbon atoms are each independently replaced by oxygen, sulfur, NH, -N=, or -N(C<sub>1</sub>-C<sub>4</sub> Alkyl)-, or

both  $R_1$  and  $R_2$  independently of one another represent a monovalent hydrocarbon radical or a hydrocarbon radical attached via a carbon atom in which one or more carbon atoms are each independently replaced by oxygen, sulfur, NH, -N=, or -N(C<sub>1</sub>-C<sub>4</sub> Alkyl)-,

HA stands for a monobasic to tribasic inorganic or organic acid, and

x denotes an integer from 1 to 6 or a fractional number between 0 and 6.

7. (Previously Presented) A process according to claim 6, wherein HA is unsubstituted or substituted phenylsulphonic acid.

8. (Previously Presented) A process according to claim 1, wherein said process is carried out at a hydrogen pressure of 1 to 500 bars.

9. (Previously Presented) A process according to claim 1, wherein said process is carried out at a temperature is 0 to 150<sup>0</sup> C.

10. (Previously Presented) A process according to claim 1, wherein the molar ratio of pterin or pterin compound to catalyst is 10 to 100,000.

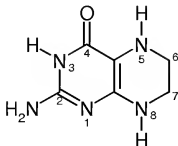
11. (Previously Presented) A process according to claim 1, wherein the reaction medium is water or water in admixture with an organic solvent.

12. (Previously Presented) A process according to claim 2, wherein the alcoholic reaction medium is an alcohol, or an alcohol in admixture with an organic solvent.

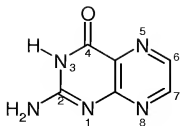
13. (Previously Presented) A process according to claim 1, wherein the metal complex contains a d-8 metal.

14-28. (Cancelled)

29. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,  
comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in alcohol or in alcohol in admixture with an organic solvent in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium.

30-32. (Cancelled)

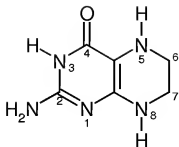
33. (Previously Presented) A process according to claim 3, wherein the hydrogenation is carried out at elevated pressure.

34. (Previously Presented) A process according to claim 1, wherein the metal complex contains iridium, rhodium or ruthenium.

35-36. (Cancelled)

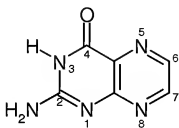
37-39. (Cancelled)

40. (Previously Presented) A process for preparing tetrahydropterin of the following formula



or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



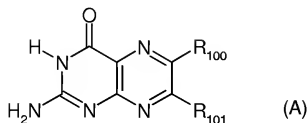
or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in alcohol or in alcohol in admixture with an organic solvent in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium, wherein the pterin compound is folic acid, a folic acid salt, a folic acid ester, a folic acid ester salt or a dihydro form thereof, with the proviso that in the event of using folic acid, a carboxylic acid thereof or a dihydro form thereof, the reaction medium is aqueous, and in the event of using a folic acid ester, a folic acid ester salt or a dihydro form thereof, the reaction medium is an alcohol.

41-44. (Cancelled)

45. (Previously Presented) A process according to claim 1, wherein the pterin compound is a pterin that is substituted in the 6- position.

46. (Previously Presented) A process according to claim 1, wherein the pterin compound is of formula (A)



in which

R<sub>101</sub> is H or independently has the meaning of R<sub>100</sub>, and

R<sub>100</sub> is an organic radical attached via a C, O or N atom and having 1 to 50 carbon atoms.

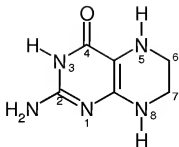
47. (Previously Presented) A process according to claim 46, wherein R<sub>100</sub> contains 1 to 30 carbon atoms and is not interrupted or is interrupted by one or more of -O-, -NH-, -N(C<sub>1</sub>-C<sub>4</sub>-alkyl)-, -C(O)-, -C(O)O-, -OC(O)-, -OC(O)O-, -C(O)NH-, -NHC(O)-, -NHC(O)O-, -OC(O)NH-, -NHC(O)NH-, -C(O)N(C<sub>1</sub>-C<sub>4</sub>-alkyl)-, -N(C<sub>1</sub>-C<sub>4</sub>-alkyl)C(O)-, -N(C<sub>1</sub>-C<sub>4</sub>-alkyl)C(O)O-, -OC(O)N(C<sub>1</sub>-C<sub>4</sub>-alkyl)-, -N(C<sub>1</sub>-C<sub>4</sub>-alkyl)C(O)N(C<sub>1</sub>-C<sub>4</sub>-alkyl)-, and which is unsubstituted or is substituted with F, Cl, Br, -CN, -OCN, -NCO, -OH, -NH<sub>2</sub>, -NHC<sub>1</sub>-C<sub>4</sub>-alkyl, -N(C<sub>1</sub>-C<sub>4</sub>-alkyl)<sub>2</sub>, C<sub>1</sub>-C<sub>4</sub>-alkyl, C<sub>1</sub>-C<sub>4</sub>-haloalkyl, C<sub>1</sub>-C<sub>4</sub>-hydroxyalkyl, C<sub>1</sub>-C<sub>4</sub>-alkoxy, C<sub>1</sub>-C<sub>4</sub>-haloalkoxy, -C(O)OH, -C(O)OM<sub>100</sub>, -C(O)OC<sub>1</sub>-C<sub>4</sub>-alkyl, -C(O)NH<sub>2</sub>, -C(O)NHC<sub>1</sub>-C<sub>4</sub>-alkyl, -C(O)N(C<sub>1</sub>-C<sub>4</sub>-alkyl)<sub>2</sub>, R<sub>102</sub>-C(O)O-, R<sub>102</sub>-OC(O)O-, R<sub>102</sub>-C(O)NH-, R<sub>102</sub>-C(O)N(C<sub>1</sub>-C<sub>4</sub>-alkyl)-, R<sub>102</sub>-NHC(O)NH-, R<sub>103</sub>C(O)- or -CH(O), wherein

M<sub>100</sub> is Li, K, Na, NH<sub>4</sub><sup>+</sup>, or ammonium with 1 to 16 carbon atoms,

R<sub>102</sub> is C<sub>1</sub>-C<sub>8</sub>-alkyl, C<sub>5</sub>- or C<sub>6</sub>-cycloalkyl, phenyl or benzyl, and

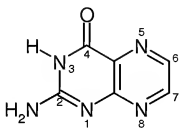
R<sub>103</sub> is C<sub>1</sub>-C<sub>4</sub>-alkyl, phenyl or benzyl.

48. (Previously Presented) A process for preparing tetrahydropterin of the following formula



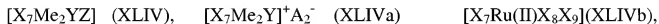
or a tetrahydropterin compound of said tetrahydropterin that is substituted at the 6-, or 7- or 6- and 7- position or positions,

comprising hydrogenating pterin of the following formula



or a pterin compound of said pterin that is monosubstituted at the 6-, or 7- or 6- and 7- position or positions,

with hydrogen in a polar reaction medium in the presence of a hydrogenation catalyst that is a metal complex that is soluble in the reaction medium of formula XLIV, XLIVa or XLIVb,



in which

Y stands for monoolefin ligands or a diene ligand;

$X_7$  represents an achiral or chiral ditertiary diphosphine, that forms a 5 to 7 membered ring with the metal atom  $Me_2$  or Ru;

$X_7$  represents an achiral or chiral ligand that forms a 5 to 7 membered ring with the metal atom  $Me_2$  or Ru, wherein said ligand contains two tertiary phosphine groups;



Me<sub>2</sub> denotes Ir(I) or Rh(I);

Z represents -Cl, -Br, or -I; and

A<sub>2</sub> is ClO<sub>4</sub><sup>-</sup>, CF<sub>3</sub>SO<sub>3</sub><sup>-</sup>, CH<sub>3</sub>SO<sub>3</sub><sup>-</sup>, HSO<sub>4</sub><sup>-</sup>, BF<sub>4</sub><sup>-</sup>, B(Phenyl)<sub>4</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, SbCl<sub>6</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup> or SbF<sub>6</sub><sup>-</sup>;

X<sub>8</sub> and X<sub>9</sub> are the same or different and have the meaning of Z or A<sub>2</sub>, or X<sub>8</sub> has the meaning of Z or A<sub>2</sub> and X<sub>9</sub> stands for hydride.

49. (Previously Presented) A process according to claim 6, wherein R<sub>1</sub> and/or R<sub>2</sub> are, each independently,

pyrrolidinyl, piperidinyl, morpholinyl, tetrahydropyranyl, piperazinyl, pyrrolidinyl methyl, pyrrolidinyl ethyl, piperidinyl methyl, piperidinyl ethyl, morpholinyl methyl, morpholinyl ethyl, tetrahydropyranyl methyl, tetrahydropyranyl ethyl, piperazinyl methyl or piperazinyl ethyl.

50-57. (Cancelled)